

Please AMEND the third full paragraph at page 1 as follows:

--So-called surface light source devices of the side light type are suitable for such an application. This is because of their structure such that a primary light source and a guide plate are arranged side by side to add only a very small thickness to the liquid crystal display. It is known that a reflection-type liquid crystal may function supplementally as a transmission-type liquid crystal when a surface light source device of side light type applied to auxiliary illumination is switched on.--

Please AMEND the fifth full paragraph at page 4 as follows:

--The present invention has been proposed under the aforesaid background. An object of the present invention is to provide a liquid crystal display, which operates to display images with high brightness and high contrast as well as with small photo-energy loss, and a surface light source device of side light type to be mounted on the display.--

Please AMEND the paragraph beginning at page 4, the last paragraph and ending at page 5, line 4 as follows:

--A surface light source device of side light type in accordance with the present invention is applied to auxiliary lighting crystal display comprising a liquid crystal display panel. The surface light source device comprises a guide plate and a primary light source supplying primary light to an incidence end face, which is provided by a minor face of the guide plate. Major faces of the guide plate provides an illumination output face and a back face.--

Please AMEND the paragraph beginning at page 5, the last paragraph and ending at page 6, line 1 as follows:

--The surface light source device of side light type comprises a guide plate and a primary light source supplying primary light to an incidence end face which is provided by a minor face of the guide plate, the guide plate having major faces to provide a back face and an illumination output face. And the guide plate is interposed between the liquid crystal layer and the polarization plate to provide an improved arrangement so that the illumination output face is directed to the liquid crystal layer.--

Please AMEND the first full paragraph at page 6 as follows:

--The illumination output face of the guide plate has non-scattering properties while the back face of the guide plate provides a light control face having emission promoting properties which help light propagating within the guide plate to escape from the illumination output face. The guide plate may be provided with "non-scattering properties" and "emission promoting properties" according to other styles. The back may be provided with "non-scattering properties" while the illumination output face may be provided with "emission promoting properties".--

Please AMEND the second full paragraph at page 6 as follows:

--Such an improved arrangement also allows the liquid crystal display to have "emission promoting properties" embodied in various manners.--

Please AMEND the third full paragraph at page 6 as follows:

--First, these emission promoting properties preferably tend to be more intensive according to distance from the incidence end faces of the guide plate. Next, the light control face may include a great number of fine regions to promote emission. The fine regions are preferably arranged with irregularity. The fine regions may be roughened regions partially occupying the back face. Each fine region is preferably provided with almost invisible dimensions.--

Please AMEND the third fifth paragraph at page 6 as follows:

--Fig. 1, is an exploded perspective view of a liquid crystal display in accordance with an embodiment of the present invention;--

Please AMEND the first full paragraph at page 7 as follows:

--Fig. 6 is a cross section view of a liquid crystal display in accordance with another embodiment of the present invention;--

Please AMEND the second full paragraph at page 7 as follows:

--Fig. 7 is a cross section view of a liquid crystal display in accordance with yet another embodiment of the present invention;--

Please DELETE the following subheading at page 7.

Please AMEND the fifth full paragraph at page 7 as follows:

--Referring to Figs. 1 and 2, illustrated is a liquid crystal display in accordance with an embodiment of the present invention. Elements used in common to the arrangement shown in Fig. 8 or Fig. 9 are indicated by common references, with repeated descriptions being simplified.--

Please AMEND the sixth full paragraph at page 7 as follows:

--A liquid crystal display 20 comprises a surface light source device of side light type 22 disposed in front of (i.e. at the viewing side of) a liquid crystal display panel 21. That is, the surface light source device 22 provides an auxiliary front-lighting unit. The liquid crystal display is viewed from above in Figs. 1 and 2.--

Please AMEND the third full paragraph at page 8 as follows:

--The reflection plate 23 is a member provided with scattering properties and high reflectivity with respect to light which is transmitted through the liquid crystal cells, being produced, for example, by applying vapor-evaporation of a metal material such as Ag or Al, onto a roughened surface of the substrate of the reflection plate 23. This reflection plate 23 is employed instead of the transmission-reflection plate 5, which is employed in the arrangement shown in Figs. 8 and 9, and has no transmissivity.--

Please AMEND the first partial paragraph at page 9 as follows:

--According to this principle, bright-dark distribution is formed to provide images to be viewed.--

Please AMEND the third full paragraph at page 9 as follows:

--In the present embodiment, a back face (the upper face in Fig. 2) 25B of the guide plate 25 provides a light control face 25D which includes an emission promoting face helping emission from an illumination output face 25C. Details of the light control face 25D is described later. On the other hand, the illumination output face 25C is a specular face having substantially no scattering power.--

Please AMEND the sixth full paragraph at page 9 as follows:

--The quantity of light reaching the reflection plate 23 depends on factors including directions of transmission polarization planes of the polarization plates 10, 6 and the state of the liquid crystal layer 8 (depending on voltage applied to the transparent electrodes).--

Please AMEND the seventh partial paragraph at page 9 continuing on with the first partial paragraph as page 10 as follows:

--The reflection plate 23 scatters and reflects the outputted illumination light. Substantially no light transmits through the reflection plate 23. Some components of the scattered and reflected light transmits through the polarization plate 6, the glass substrate 7, the liquid crystal layer 8, the glass substrate 9, the polarization plate 10 and the guide plate 25 in order, being emitted toward the outside to provide light L2A to contribute to displaying.--

Please AMEND the first full paragraph at page 10 as follows:

--The quantity of light emitting toward the outside varies depending on factors including directions of transmission polarization planes of the polarization plates 10, 6 and state of the liquid crystal layer 8 (depending on voltage applied to the transparent electrodes). According to this principle, bright-dark distribution is formed to provide images to be viewed.--

Please AMEND the second full paragraph at page 10 as follows:

--The light control face 25D is provided with emission promoting properties to promote emission of illumination light L2. These emission promoting properties tend to be at first stronger according to distance from the incidence face 25A and to be weaker thereafter. The reason why weaker emission promoting properties are assigned around a distal end is that illumination output is generally increased around the distal end as a distal end face brings reflection light thereabout.--

Please AMEND the third full paragraph at page 10 as follows:

--Emission promoting regions are distributed on the back face 25B according to a light control pattern. The light control pattern is designed so that the above tendency is realized. An example of the light control pattern according to the present invention is illustrated in Fig. 3a.--

Please AMEND the fourth full paragraph at page 10 as follows:

--Referring to Fig. 3a, each emission promoting region on the back face 25B has a shape like a fine dot. A great number of fine dots are distributed so that covering rate (covering area per unit area) tends to be at first increased according to distance from the incidence face 25A and to be reduced thereafter, as shown in Fig. 3b. Such distribution realizes the aforesaid tendency.--

Please AMEND the fifth full paragraph at page 10 as follows:

--Each emission promoting region consists of, for instance, a fine mat-processed region. Size of the dot-like fine region is so small as to be invisible if observation is attempted from the back face side. It is also preferable that this size is smaller than the structural period of the liquid crystal cells. Dot size (diameter) is practically less than 80 μm and is preferably, in particular, less than 35 μm .--

Please AMEND the sixth partial paragraph at page 10 as follows:

--Fig. 3b shows a curve illustrating the covering of dots according to design. According to a manner--

Please AMEND the first partial paragraph at page 11 as follows:

--of design, first and foremost, a guide plate 25 without light control pattern 27 is measured for intensity distribution of light going toward the frontal direction with respect to the illumination output face 25C. The emission promoting face modifies this intensity distribution and improves the output efficiency of illumination.--

Please AMEND the first full paragraph at page 11 as follows:

--Under considerations of the measured intensity distribution, variation of the covering rate is calculated so that a desirable intensity distribution is realized. In a typical case, approximately uniform distribution of illumination is desired. Then, a grid is set at pitches varying according to the calculated changing of covering rate.--

Please AMEND the second full paragraph at page 11 as follows:

--An example of such a grid is shown with broken lines in Fig. 3a. A constant number of (for example, one) dots (fine emission promoting regions) are allotted and arranged for each grid cell. Dot arrangement is determined preferably so that no periodic regularity appears. Such irregular dot arrangement prevents Moire fringes which might be generated in connection with a fine periodic structure of the liquid crystal cells.--

Please AMEND the third full paragraph at page 11 as follows:

--The peak (the maximum covering rate) in the graph of Fig. 3b preferably does not mark an excessively high score. This is because excessively high covering rate will increase direct escape from the back face 25B toward the frontal direction (toward the upper direction of Fig. 2) and will thereby impede the illumination promotion function for promoting emission from the illumination output face 25C.--

Please AMEND the fourth full paragraph at page 11 as follows:

--Besides, high covering rate will effect strong light diffusion which might make the displayed image blurred. From such a viewpoint, it is practical to employ a design such that the maximum covering rate is not larger than 50%, and it is preferably that the maximum covering rate is not larger than 20%, for example no larger than 10%.--

Please DELETE the subheading at page 12.

Please AMEND the third full paragraph at page 12 as follows:

--Referring to Fig. 6, illustrated is a liquid crystal display in accordance with the another embodiment of the present invention. Elements used in common to the arrangements shown in Fig. 8, Fig. 9, Fig. 1 or Fig. 2 are indicated by common references, with repeated descriptions being simplified.--

Please AMEND the second full paragraph at page 13 as follows:

--The reflection plate 23 is a member provided with scattering property and high reflectivity with respect to light which is transmitted through the liquid crystal cells, having substantially no light transmissivity, which may be the same element as is employed in the previous embodiment.--

Please AMEND the second full paragraph at page 14 as follows:

--The primary light source 13 is composed of, for instance, a fluorescent lamp (cold cathode lamp) 14 and a reflector 15 backing the lamp. When the fluorescent lamp 14 is turned on, primary light is introduced into the guide plate 25 through an opening of the reflector 15 and an end face 25A of the guide plate. The guide plate 25 may be the same as employed in the previous embodiment.--

Please AMEND the first full paragraph at page 15 as follows:

--The quantity of light emitting toward the outside varies depending on factors including directions of transmission polarization planes of the polarization plates 10, 6 and state of the liquid crystal layer 8 (depending on voltage applied to the transparent electrodes). According to this principle, bright-dark distribution is formed to provide images to be viewed.--

Please AMEND the second full paragraph at page 15 as follows:

--The light control face 25D is provided with emission promoting properties to promote emission of illumination light L2. These emission promoting properties tend to be at first stronger according to distance from the incidence face 25A and to be weaker thereafter. The reason why such reduced emission promoting properties are assigned to around a distal end is that a distal end face produces reflection light which will cause illumination output to be increased.--

Please AMEND the fourth full paragraph at page 15 as follows:

--Comparing the present embodiment with the embodiment of Fig. 1, the followings will be understood. Any one of the embodiments do not succeed in perfect suppression of illumination light L2B which is directly emitted from the back face 25B of the guide plate 25.--

Please AMEND the fifth full paragraph at page 15 as follows:

--However, the present embodiment nevertheless prevents a half of such illumination light L2B from escaping to the outside because the polarization plate 10 is arranged at the outside of the guide plate 25. Accordingly, white-ish background leading to reduced display of contrast is less conspicuous compared with the case of the embodiment of Fig. 1.--

Please AMEND the sixth full paragraph at page 15 and continuing onto page 16 as follows:

--It is to be further noted that some of illumination light L2A emitted from the illumination output face 25C is emitted from the back face 25B after being reflected by an element such as

the glass substrate 9 and penetrating through the guide plate 25. Such components fail to pass through the liquid crystal layer 8, too, thereby leading to no contribution to display contrast formation.--

Please AMEND the first full paragraph at page 16 as follows:

--However, such components give only a small reduction in contrast because blocking by the polarization plate 10 is effected.--

Please DELETE the subheading at page 16.

Please AMEND the third full paragraph at page 16 as follows:

--Referring to Fig. 7, illustrated is a liquid crystal display in accordance with another embodiment of the present invention. Elements used in common to the arrangements shown in Fig. 8, Fig. 9, Fig. 1, Fig. 2 or Fig. 6 are indicated by common references, with repeated descriptions being simplified.--

Please AMEND the fourth full paragraph at page 16 as follows:

--A liquid crystal display 50 comprises a surface light source device of side light type disposed behind a liquid crystal layer 8 (as viewed from the viewing side). According to an arrangement different from the arrangement of the previous embodiment, the surface light source device is incorporated in a liquid crystal display panel to provide an auxiliary front-lighting means. Display screen is viewed from above in Figs. 7.--

Please AMEND the second full paragraph at page 17 as follows:

--The reflection plate 23 is a member provided with scattering properties and high reflectivity with respect to light which is transmitted through the liquid crystal cells, having substantially no light transmissivity, which may be the same element as is employed in the embodiment of Fig. 1.--

Please AMEND the third full paragraph at page 17 as follows:

--On impinging of ambient light L1 to the liquid crystal display panel from above in Fig. 7, some components of the ambient light transmit through the polarization plate 10, the glass substrate 9, the liquid crystal layer 8, the glass substrate 7, the guide plate 25 and the polarization plate 6 to reach the reflection plate 23.--

Please AMEND the fourth full paragraph at page 17 as follows:

--Quantity of light reaching the reflection plate 23 depends on factors including directions of transmission polarization planes of the polarization plates 6, 10 and the state of the liquid crystal layer 8 (depending on voltage applied to the transparent electrodes).--

Please AMEND the sixth full paragraph at page 17 as follows:

--Quantity of light emitting toward the outside varies depending on factors including directions of transmission polarization planes of the polarization plates 10, 6 and the state of the liquid crystal layer 8 (depending on voltage applied to the transparent electrodes). According to this principle, bright-dark distribution is formed to provide images to be viewed.--

Please AMEND the first partial paragraph at page 18 as follows:

--guide plate 25 through an opening of a reflector 15 and an end face 25A of the guide plate. The guide plate 25 may be the same as employed in the embodiment of Fig. 1 or the embodiment of Fig. 6. Attention should be paid to a fact that a back face 25B is directed to the liquid crystal cell (in detail, the glass substrate 7) and an illumination output face 25C is directed to the polarization plate 6.--

Please AMEND the third full paragraph at page 18 as follows:

--Some of the outputted illumination light from the illumination output face 25C transmits through the polarization plate 6 to reach the reflection plate 23. The proportion of light reaching the reflection plate 23 depends on a direction of the transmission polarization plane of the polarization plate 6.--

Please AMEND the fourth full paragraph at page 18 as follows:

--The reflection plate 23 scatters and reflects the outputted illumination light. Substantially no light transmits through the reflection plate 23. Some component of the scattered and reflected light transmits through the polarization plate 6, the guide plate 25, the glass substrate 7, the liquid crystal layer 8, the glass substrate 9 and the polarization plate 10 in order, being emitted toward the outside to provide light L2A contributing to displaying.--

Please AMEND the fifth full paragraph at page 18 as follows:

--The quantity of light emitting toward the outside varies depending on factors including the directions of transmission polarization planes of the polarization plates 10, 6 and the state of the liquid crystal layer 8 (depending on voltage applied to the transparent electrodes). According to this principle, bright-dark distribution is formed to provide images to be viewed.--

Please AMEND the last partial paragraph at page 18, continuing onto page 19 as follows:

--The light control face 25D is provided with emission promoting properties to promote emission of illumination light L2. This emission promoting properties tend to be at first stronger according to distance from the incidence face 25A and to be weaker thereafter. The reason why such reduced emission promoting properties are assigned to around a distal end is that a distal end face produces reflection light which will cause illumination output to be increased.--

Please AMEND the first full paragraph at page 19 as follows:

--The present embodiment also employs emission promoting regions which are distributed on the back face 25B according to a light control pattern. The light control pattern is designed so that the above tendency is realized. The light control pattern illustrated in Fig. 3a may be employed in the present embodiment also. Repeated descriptions on the light control pattern shown in Fig. 3a are omitted.--

Please AMEND the second full paragraph at page 19 as follows:

--Comparing the present embodiment with the embodiments of Figs. 1 and 6, the followings will be understood. As previously discussed, it is impossible to achieve perfect suppression of illumination light L2B which is directly emitted from the back face 25B of the guide plate 25.--

Please AMEND the third full paragraph at page 19 as follows:

--However, the present embodiment is capable of restraining white-ish background which would lead to reduction in display contrast from appearing, because the liquid crystal cell is arranged at the outside of the guide plate 25.--

Please AMEND the fourth full paragraph at page 19 as follows:

--Some of illumination light L2B is reflected by elements such as the glass substrates 7, 9 before reaching the polarization plate 10, returning to the guide plate 25. Such illumination light will be able to have a chance to be emitted from the illumination output face 25C. This results in less quantity of light which is consumed for forming white-ish background and in much quantity of light which contributes to forming display contrast, as compared with the embodiments of Figs. 1 and 6.--

Please AMEND the sixth partial paragraph at page 19 as follows:

--In the above described embodiments of Figs. 1 and 6, effective utilization of such oblique illumination light L2AA is hardly expected. On the other hand, the present--

Please AMEND the first full paragraph at page 20 as follows:

--None of the above embodiments aim to be limiting to the scope of the present invention. For instance, the following modifications fall within the scope of the present invention.--